

REMARKS

In view of the following remarks, the Examiner is requested to withdraw the rejection and allow Claims 1-20 and 22-26, the only claims pending and currently under examination in this application.

Upon entry of the foregoing amendments, Claims 1-19 and 22-26 are under consideration. Claims 1, 15, 19, 23 and 25 have been amended. Support for these amendments may be found in the specification, for example, at paragraphs [0030] and [0038]. Claim 23 has been amended to correct a typographical error. Claim 21 has previously been canceled and Claims 27-34 have previously been withdrawn. Accordingly, no new matter has been added by the amendments filed herein.

CLAIM OBJECTIONS

Claim 23 was objected to for having an incorrect dependency. In view of the above amendment, this objection may be withdrawn.

REJECTIONS UNDER 35 U.S.C. § 102

As amended, Claim 19 is directed to a method of producing an adhesive composition having improved adhesive characteristics for use in bonding a ceramic material to a manufacturing tool, comprising adding a solvent to a resist adhesive resin, wherein the solvent has a boiling point in the range of about 30° C to about 70° C, in a manner sufficient to produce said adhesive composition with improved adhesive characteristics.

As such, elements of Claim 19 as amended, and the claims dependent there from, include the production of an adhesive composition that includes a solvent having a boiling point in the range of about 30° C to about 70° C.

The MPEP § 2131 specifically teaches that a claim is anticipated by a reference only if the *reference teaches each and every element of the claim*.

Claims 19, 20, and 22-25 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Hacker et al. (U.S. Publication No. 2002/0002265)

Hacker et al. describes a process for forming a planarization film on a substrate that does not smoke or fume on heating. According to the disclosure of Hacker et al., a planarization film is manufactured on a substrate in order to “provide a relatively flat surface” for “microlithographic patterning of semiconductor structures” or substrate “coating” (paragraphs [002-004]). As such, it is essential that Hacker et al.’s compositions flow and level properly in order for planarization into a film layer to occur. There is no teaching in Hacker that indicates an adhesive composition is produced.

Further, in making this rejection, the Office asserts that Hacker et al. discloses the use of a single solvent consisting of ethyl acetate. However, ethyl acetate has a boiling point of 77.1° C. See exhibit A. Hence, as the single solvent that the Office asserts is disclosed by Hacker has a boiling point that is outside of the about 30° C to about 70° C range, recited in amended Claim 19, Hacker does not teach every element of the rejected claims.

Accordingly, Hacker et al. fails to teach each and every element of the instant invention, namely, an adhesive composition in which the solvent has a boiling point in the range of about 30° C to about 70° C. Therefore, Hacker does not anticipate the claimed invention and this rejection may be withdrawn.

Claims 19 and 22-26 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Uetani et al. (U.S. Patent Application Publication No. 2001/0026905)

Uetani et al. is drawn to a resist composition that comprises an alkali-soluble novolac resin and a radiation-sensitive quinonediazide compound for use in the fine processing of semiconductor integrated circuits.

As previously discussed above, an element of Claim 19 as amended, and the claims dependent there from, is an adhesive composition.

Nowhere throughout the disclosure of Uetani et al. is the production of an adhesive composition taught. In fact, Uetani does not even reference the word “adhesive” throughout its

entire specification. Rather, Uetani discloses the production of a positive resist composition. The resist composition includes a novolac resin that includes a quinonediazide. The Office asserts that this composition is considered an “adhesive composition.” However, the Office has not cited to any teaching within Uetani that substantiates and supports this assertion.

Hence, the Applicants would like to point out that the addition of the quinonediazide to the novolac resin changes the properties of the novolac resin. For instance, the presence of a photosensitive compound, such as quinonediazide, will impede dissolution and thus is not suitable as a debondable adhesive. For example, as can be seen with reference to Example 2, set forth in the Applicants’ specification, the addition of a photosensitizer to a novolac resist in the production of an adhesive resulted in a 75% loss in yield. Thus, the presence of the quinonediazide affects any inherent adhesiveness of the initial novolac resin and the overall composition produced as a whole. Accordingly, although Uetani discloses the production of a positive resist composition, there is no teaching in Uetani that indicates that the positive resist composition produced is an “adhesive composition”. Therefore, Uetani does not teach every element of the rejected claims, namely, an adhesive composition. Consequently, Uetani does not anticipate the claimed invention and this rejection may be withdrawn.

Claims 19 and 22-26 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Teiichi et al. (WO 01/60938 with U.S. Patent Application Publication No. 2001/0026905 used as a translation)

Teiichi et al. is drawn to a composition that can form a film which has enough heat resistance and moisture resistance such that a semiconductor element having a large coefficient of thermal expansion may be mounted on a substrate via use of the film.

As previously discussed above, Claim 19 is directed to a method of producing an adhesive composition for use in bonding a ceramic material to a manufacturing tool. The method includes adding a solvent to a resist adhesive resin, wherein the solvent has a boiling point in the range of about 30° C to about 70° C. Accordingly, an element of Claim 19, and the claims dependent there from, is the production of an adhesive composition that includes a resist

adhesive resin and a solvent, wherein the solvent has a boiling point in the range of about 30° C to about 70° C.

The Office asserts that Teiichi teaches all the elements of the rejected claims because Teiichi discloses an epoxy resin combined with an acetone solvent. In support of this assertion, the Office points to paragraphs [0033] and [0137]. The applicants, however, disagree and contend that the Office has misconstrued the teachings of the cited reference.

Although paragraph [0033] may disclose the use of an epoxy resin, and although paragraph [0137] may disclose the use of an acetone solvent, Teiichi when viewed as a whole does not disclose an adhesive composition that includes both a resist adhesive resin and a solvent that has a boiling point in the range of about 30° C to about 70° C.

Rather, to the extent that Teiichi discloses combining an epoxy resin with a solvent to produce a composition, the epoxy resin is formulated as a film containing a polymer which film is dissolved in a solvent such as methyl ethyl ketone, toluene, and cyclohexanone. See paragraph [0131]. All of these solvents have a boiling point that is outside of the 30° C to about 70° C range recited in Claim 19. See Exhibit B.

Paragraph [0137], on the other hand, is not directed to producing a composition of an epoxy resin film dissolved in a solvent, but rather is directed to producing a varnish that may be used to coat a separate and removable support film, such as a plastic film. See paragraph [0133]. Thus, it is the varnish of the plastic support film that may include an acetone solvent, and not the epoxy resin/solvent film composition.

Accordingly, Teiichi et al. does not teach the production of an adhesive composition that includes a resist adhesive resin and a solvent, wherein the solvent has a boiling point in the range of about 30° C to about 70° C. As such, Teiichi et al. fails to teach each and every element of the rejected claims. Therefore, Teiichi does not anticipate the claimed invention and this rejection may be withdrawn.

Claims 19, 22, 24 and 25 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Asami et al. (JP 60221476)

Asami et al. is drawn to a bonding composition which includes a graft copolymer obtained by subjecting a cyclic ester to a ring opening reaction in the presence of a cellulosic derivative and a organic solvent.

As previously discussed above, Claim 19, and the claims dependent there from, recite an adhesive composition that includes a solvent in which the solvent has a boiling point in the range of about 30° C to about 70° C.

In making this rejection, the Office asserts that Asami et al. discloses a cellulose polymer that is combined with a solvent consisting of methyl ethyl ketone. However, there is no teaching in Asami that by combining a cellulose polymer with methyl ethyl ketone an adhesive composition is produced. Further, methyl ethyl ketone has a boiling point of 80° C. See exhibit C. Hence, as the disclosed solvent has a boiling point that is outside of the about 30° C to about 70° C range, recited in amended Claim 19, Asami does not teach every element of the rejected claims.

Accordingly, Asami et al. fails to teach each and every element of the instant rejected claims, namely, an adhesive composition in which the solvent has a boiling point in the range of about 30° C to about 70° C. Therefore, Asami does not anticipate the claimed invention and this rejection may be withdrawn.

REJECTIONS UNDER 35 U.S.C. § 103(a)

According to MPEP § 2142:

“To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. **Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.**”

Claims 15-20 and 22-26 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Ruiz (U.S. Patent No. 5,406,694) in view of Teiichi et al. (WO 01/60938 with U.S. Patent Application Publication No. 2001/0026905 used as a translation)

Ruiz is directed towards methods of fabricating thin-film magnetic recording heads, or sliders, which employ the step of slicing a wafer containing like-oriented transducers into chunks.

Elements of Claim 15 as amended include a de-bondable adhesive composition that includes a solvent having a boiling point in the range of about 30° C to about 70° C.

The Applicants contend that neither Ruiz nor Teiichi teach or suggest the production and/or use of a de-bondable adhesive composition.

Further, the Applicants contend that even if Ruiz were to be combined with Teiichi, in the manner suggested, one would still not arrive at the Applicants' invention, because Ruiz actually teaches away from the invention as claimed. According to MPEP § 2145, a prior art reference that "teaches away" from the claimed invention is a significant factor to be considered in determining obviousness.

Specifically, in advancing this rejection, the Office directs the Applicants attention to FIG. 6 of Ruiz and asserts that Ruiz discloses forming a slider by providing a ceramic chunk, identified by the Office as element 40, and bonding to the air bearing side thereof a ceramic manufacturing tool, identified by the Office as element 50, through a layer of thermo-set adhesive. The Office then asserts that Ruiz is not limited to any particular thermo-set adhesive. See page 6, item 9, of the 19 September 2007 Office Action.

The Applicants disagree with the assertions of the Office and would like to draw the attention of the Office to column 7, lines 38-48 of Ruiz, wherein it is stated:

FIG. 6 shows a first method of slicing the chunks 40, the process being repeated for each chunk 40 of FIG. 4. First, the air-bearing surface side of the chunk 40 is bonded to a rigid support piece 50 using permanent thermo-set adhesive. The support piece 50 may conveniently be formed from the same material as the wafer 10. The support piece 50 allows the chunk 40 to be clamped during a subsequent slice, but more importantly, it also allows the chunk 40 to maintain its original straightness through the subsequent bonding and slicing iterations of FIG. 6.

Contrary to the assertion of the Office, in the context provided above, Ruiz is in fact limited to the type of thermo-set adhesive that may be used as Ruiz discloses that the thermo-set adhesive must be permanent. See column 7, lines 41-42, provided above.

Accordingly, because the thermo-set adhesive in Ruiz is permanent, it is not de-bondable. Thus, using the rationale provided by the Office, if one were to combine Ruiz and Teiichi, one would still not arrive at the Applicants claimed invention, as the adhesive composition would be permanent and not de-bondable as claimed. Therefore, the Applicants contend for this reason alone a *prima facie* case of obviousness has not been presented.

Further, according to the Office Action (P. 6), the Examiner acknowledges that "Ruiz does not specifically describe using an adhesive that includes a solvent." As such, the Examiner is relying on Teiichi et al. to provide this element.

However, Teiichi et al. does not teach or suggest an adhesive composition that includes a resist adhesive resin and a solvent, wherein the solvent has a boiling point in the range of about 30° C to about 70° C. Teiichi does not teach or suggest this element because at paragraph [0131] Teiichi actually discloses the formulation of an epoxy/solvent composition, wherein the solvents used all have a boiling point outside of the range recited in Claim 15. This is substantiated by paragraph [0132] wherein Teiichi discloses that the temperature used to remove the solvent is between 80° C to 250° C. As such, Teiichi et al. fails to remedy the deficiencies of Ruiz.

Therefore, Ruiz in combination with Teiichi et al. fails to teach or suggest each and every element of the instant invention, namely, a de-bondable adhesive composition that includes a

solvent having a boiling point in the range of about 30° C to about 70° C. Accordingly, a *prima facie* case of obviousness has not been provided and this rejection may be withdrawn.

Claims 1-5, 7-10 and 12-14 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Ruiz (U.S. Patent No. 5,406,694) and Teiichi et al. (WO 01/60938 with U.S. Patent Application Publication No. 2001/0026905 used as a translation) as applied to claims 15-20 and 22-26 above, and further in view of Tanaka et al. (U.S. Patent No. 4,376,194)

As set forth above, the combined teaching of Ruiz and Teiichi et al. is deficient in that it fails to teach or suggest the element of a de-bondable adhesive composition. The combination fails to teach or suggest this element because Ruiz actually discloses the use of a permanent thermo-set adhesive.

According to the Office Action (P. 8), the Office cites Tanaka et al. for reciting the steps of applying the adhesive to a first composition and then a second composition and then subjecting the adhesive to conditions effective for removing the solvent. As such, Tanaka et al. fails to make up for the deficiency of Ruiz and Teiichi et al. Accordingly, a *prima facie* case of obviousness has not been established and this rejection may be withdrawn.

Claim 11 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Ruiz (U.S. Patent No. 5,406,694) and Teiichi et al. (WO 01/60938 with U.S. Patent Application Publication No. 2001/0026905 used as a translation) and Tanaka et al. (U.S. Patent No. 4,376,194) as applied to claims 1-5, 7-10 and 12-14 above, and further in view of Schafer (U.S. Patent No. 5,421,884)

As set forth above, the combined teaching of Ruiz and Teiichi et al. is deficient in that it fails to teach or suggest the element of a de-bondable adhesive composition. The combination fails to teach or suggest this element because Ruiz actually discloses the use of a permanent thermo-set adhesive.

According to the Office Action (P. 8), the Office cites Schafer et al. for disclosing a technique for removing solvent from an adhesive by applying vacuum and heat conditions. As such, Schafer et al. fails to make up for the deficiency of Ruiz, Teiichi et al., and Tanaka et al. Therefore, a *prima facie* case of obviousness has not been established and this rejection may be withdrawn.

Claims 1-5, 6, 8, 9, 12-15 and 17 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Ruiz (U.S. Patent No. 5,406,694) in view of Asami et al. (JP 60221476) and Tanaka et al. (U.S. Patent No. 4,376,194)

As previously discussed above, Ruiz is directed towards methods of fabricating thin-film magnetic recording heads or sliders which employ the step of slicing a wafer containing like-oriented transducers into chunks.

An element of Claim 1 as amended includes the use of a de-bondable adhesive composition. As described above, Ruiz actually teaches away from this element as claimed because Ruiz discloses the use of a permanent thermo-set adhesive. Accordingly, because Ruiz teaches away from the claimed invention, the combination of Ruiz with Asami et al. and Tanaka et al. fails to teach each and every limitation of the Applicants' claims, namely, the use of a de-bondable adhesive composition. Accordingly, a *prima facie* case of obviousness has not been established and this rejection may be withdrawn.

CONCLUSION

Applicants respectfully submit that the application is in condition for allowance and request an allowance for same. Please charge any fees due or credit any overpayment to the undersigned's Deposit Account No. 18-0580, Reference No. 4800-0009.

Respectfully submitted,

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